# CIVIL ENGINEERING

INDEX

January-December 1954

Volume 24

*Published by the* AMERICAN SOCIETY OF CIVIL ENGINEERS—*33 West 39th Street, New York, N. Y.*

# CIVIL ENGINEERING DEPARTMENTS


Advertising*
ASCE Conventions*
Catalog Digests*
Deceased*
Do You Know that?*
Equipment, Materials and Methods*
Engineering Societies Personnel Services, Inc.*
Engineers' Notebook
Field Hints
Films Available*
From the Nation's Capital*
How Would You Do It?*
Index to Advertisers*
Literature Available*

N. G. Neare's Column*
New in Education*
New Publications*
News Briefs
News of Engineers*
Non-ACSE Meetings*
Notes from the Local Sections*
Nuclear Notes
Positions Announced*
Proceedings Papers Available as Separates*
The Readers Write
Recent Books*
Society News


* Not indexed

**In this Index, quotation marks are used to indicate signed articles and the more comprehensive unsigned items.**

**The Society is not responsible for any statements made or opinions expressed in its publications.**


**Reprints from this publication may be made on condition that full credit be given to the author and copyright credit to CIVIL ENGINEERING, and that date of original publication be stated.**

Copyright, 1955, by the
American Society of Civil Engineers
Printed in U.S.A.

# Index to Civil Engineering

JANUARY–DECEMBER 1954

## Subject Index


**AERIAL PHOTOGRAPHY**

"Jungle no barrier to aerial mappers of Cerro Bolivar," Thomas C. Oftelie . . . 457

**AGGREGATES**

"Barytes aggregate and grout intrusion method used in shield for materials testing reactor," Lewis Narrow . . . 292
"Entrained air benefits lightweight aggregate concrete," Francis J. Mardulier . . . 24
"Good concrete made with coral and sea water," D. Lee Narver . . . 654
*See also* Concrete

**AIR BASES**

Contract given for Labrador air base . . . 480

**AIRPORTS**

"Concrete overlay on airfield pavement solves problem of heavier aircraft," H. R. Hallock . . . 664
"Philadelphia's International Airport mirrors design progress," Samuel S. Baxter . . . 587

**ALUMINUM**

Aluminum industry sets new production record . . . 698
New records set in 1953 . . . 120
New Texas aluminum works starts operation . . . 411

**AMERICAN SOCIETY OF CIVIL ENGINEERS**

Awards and Prizes
- Announced by Board . . . 468
- Freeman Fellow finds interesting hydraulic activity abroad . . . 309
- Freeman Fellowship for 1954 is announced . . . 43
- Freeman Fund Fellowship open . . . 319
- John Fritz Medal awarded to Harry Alonzo Winne . . . 748
- Hoover Medal awarded to Alfred P. Sloan, Jr. . . . 748
- Daniel W. Mead Prize contest open . . . 612
- Daniel W. Mead Prizes given to Alfred E. Waters, II, and William H. Blackmer . . . 829
- Middlebrooks Memorial Fund established . . . 614
- J. Waldo Smith Fellowship to Gunnar Sigurdsson . . . 612
- To be awarded at Convention . . . 608

Badges
- Jewelry for sale . . . 322

Ballots
- Tellers canvass ballot for 1955 ASCE officers . . . 545, 688

Bid Practice
- ASCE action on competitive bidding approved . . . 680
- "Competitive bidding for professional services not in the public interest," William N. Carey . . . 296
- Competitive bidding opposed in Board action . . . 177
- Competitive bidders suspended by Board . . . 612
- Discussion against bidding, by Wallace C. Penfield . . . 541
- Professional ethics hearing . . . 469
- Protest against bidding for engineers' services rejected by S. C. Highway Department . . . 395

Board of Direction
- Actions at Atlantic City briefed . . . 467
- Actions at New York Annual Convention briefed . . . 745
- Actions at Atlanta briefed . . . 176

Budget
- A record for 1955 . . . 828
- Committee recommendations adopted . . . 746

CIVIL ENGINEERING
- 1953 index ready . . . 107
- Receives 1954 Award of Merit . . . 481

| ISSUE 1954 | PAGE NUMBERS |
|---|---|
| January | 1–68 |
| February | 69–140 |
| March | 141–212 |
| April | 213–282 |
| May | 283–358 |
| June | 359–434 |
| July | 435–504 |
| August | 505–566 |
| September | 567–646 |
| October | 647–708 |
| November | 709–763 |
| December | 783–848 |

Code of Ethics
- "A hard look at engineering ethics," Mason G. Lockwood . . . 316

Collective Bargaining
- ASCE labor statement endorsed by AGC . . . 842
- Collective opinion of members . . . 317
- Requires group action . . . 320
- Rights of employee stressed in ASCE-AGC discussion . . . 544
- "What about collective bargaining?" Charles W. Yoder . . . 591

Committees
- ASCE Committee on sedimentation sponsors conference . . . 833
- Board confirms new committee personnel . . . 830
- Committee on Engineering Education reports on ASCE committee report . . . 109, 110
  - Discussion by Samuel B. Folk . . . 249

Constitution
- Index available . . . 179

Dues
- Ballots for dues increase mailed . . . 316
- Ballot on dues increase authorized at Atlanta Convention . . . 174
- Dues increase ballot carried by 1,009 votes . . . 469

Employment Conditions
- Questionnaire on Employment Conditions, 1953, analyzed . . . 320

Engineering Societies Building
- Advantages of Manhattan studied . . . 397
- New Engineering Societies Center Building studied . . . 826
- Philadelphia wants Engineering Societies Center . . . 470
- Where should the Engineering Societies Center be located? . . . 323

Honorary Members
- To be inducted at Annual Convention . . . 606

Insurance
- More benefits offered in ASCE Group Disability Plan . . . 471

Joint Activities
- Guide issued by Joint Committee of Design Professions . . . 547

Junior Members
- Conference of, sponsored by Virginia Section . . . 181

Local Sections
- Austin Branch host to Hydraulics Division meeting Sept. 8–10 . . . 406
- Brazil Section members visit hydroelectric project . . . 44
- Cleveland Section is host to District 9 Council . . . 547
- Colorado Section reports on Denver subsoils . . . 618
- District 14 Council meets in St. Louis . . . 179
- Hawaii Section's all day meeting . . . 43
- Junior Forum in Los Angeles active . . . 548
- Handbook of Local Section operations issued . . . 317
- Intermountain Section host to ASCE Irrigation and Drainage Conference, Salt Lake City, Sept. 9–11 . . . 689
- New England Council has first meeting . . . 321
- New England Sections plan March 20 meeting . . . 107
- Pacific Northwest Conference in Spokane . . . 255
- Pacific Southwest Conference, April 28–May 1 . . . 107, 181, 251
- Structural Division and Kansas City Section, Structural Conference, May 13–14 . . . 253
- Tennessee Valley Section holds annual meeting . . . 46
- Texas holds spring meeting . . . 106
- Texas Section holds fall meeting in Houston . . . 750
- Texas Section's Austin Branch host to Hydraulics Division Meeting, Sept. 8–10 . . . 689
- Texas Section sponsors first Pipeline Conference, Apr. 9–10 . . . 179
- Virginia Section host to District 6 Council . . . 618
- *See also* Notes from the Local Sections *in each issue*

Manuals
- Corrections for Manual No. 31 . . . 41
- Ground Water Committee plans hydrology manual . . . 470
- Manual No. 34, *Definitions of Surveying, Mapping and Related Terms*, issued . . . 616
- Society's Cost Control Manual released . . . 321

Meetings
- ASCE problems studied at large West Coast Conferences . . . 394
- Annual Convention, Oct. 18–22
  - Activities described . . . 543, 606, 683, 742
  - Program . . . 594
- Atlanta Convention, Feb. 17–19
  - Activities described . . . 40, 62, 174
  - Program . . . 33
- Atlantic City Convention, June 15–18
  - Activities described . . . 250, 316, 465
  - Program . . . 310
- General business meeting called for Feb. 17 . . . 40
- Irrigation conference scheduled for Sept. 16–17 . . . 397
- San Diego Convention, Feb. 9–11
  - Activities described . . . 825
  - Program . . . 819

Membership
- New membership roster must be requested . . . 106
- Roster for 1954 free on request . . . 40

Officers
- New officers to be inducted at Annual Convention . . . 685

Presidents
- W. R. Glidden's inaugural address . . . 716
- Past-President E. M. Hastings dies . . . 832

PROCEEDINGS

More free Proceedings Separates to be distributed . . . 616
Price of Separates folder increased . . . 255
Proceedings Separates listed . . . 119, 111, 131, 127, 131, 127, 123, 119, 131, 127, 123, 119 (page nos. in each issue, Jan.-Dec. respectively)

Salaries & Fees

"Supplemental survey of salaries for civil engineering positions" . . . 243
"The young engineer looks at his economic position," report of Salary Committee, Junior Forum, Los Angeles Section . . . 729

Staff

Carl E. Beam retires . . . 106
Eleanor H. Frick, former office manager, dies . . . 831
W. H. Wisely to succeed W. N. Carey as ASCE Executive Secretary . . . 718

Student Chapters

Honored for excellence . . . 399
North Central Conference of Student Chapters Apr. 14-16 . . . 179
Regional spring conferences mark end of Student Chapter year . . . 398
Southeastern Student Conference at Georgia Institute of Technology . . . 255

Technical Divisions

Austin Branch host to Hydraulics Division meeting Sept. 8-10 . . . 406
Circulate news letters . . . 326
City Planning Division schedules all-day meeting in Lehigh Valley . . . 684
Construction Division forms survey committee . . . 400
Construction Division, pipeline constructors meet at Midland, Tex., Apr. 9-10 . . . 322
Construction Division's Pipeline Committee schedules conference . . . 106
Engineering Mechanics Division plans news letter . . . 400
Hydraulics Division Meeting program Sept. 8-10, Austin, Tex. . . . 539
Hydraulics Division to meet in Austin, Tex., Sept. 8-10 . . . 326
Irrigation conference scheduled for September 16-17 . . . 397
New endeavors revealed at Chicago Conference, Aug. 12-13 . . . 614
Sanitary Engineering Division discusses certification of sanitary engineers . . . 832
Structural Conference held in Kansas City, May 13-14 . . . 396
Structural Division and Kansas City Section, Structural Conference May 13-14 . . . 253
Texas Section's Austin Branch host to Hydraulics Division Meeting, Austin, Tex., Sept. 8-10 . . . 689

TRANSACTIONS

Available for 1953 . . . 40
Available for 1954 . . . 833

**AMERICAN SOCIETY FOR ENGINEERING EDUCATION**

Need for more and better trained engineers stressed at annual meeting of ASEE . . . 554
Report of Committee on Evaluation of Engineering Education summarized and evaluated . . . 109, 110
Discussion by Samuel B. Folk . . . 249

**AMERICAN SOCIETY FOR TESTING MATERIALS**

ASTM approves 65 new standards at annual meeting . . . 552
ASTM Award to honor memory of F. E. Richart . . . 339
ASTM Committees advance work on standards . . . 120
Starts wood pole research program . . . 190

**AMERICAN STANDARDS ASSOCIATION**

Installation standards for construction work to avoid jurisdictional disputes . . . 697

**AQUEDUCTS**

USBR awards contract for Davis Aqueduct . . . 625

**ATOMIC ENERGY**

AEC approves new power reactor study . . . 553
AEC approves nuclear power study by TVA . . . 118
AEC authorizes new power reactor study . . . 754
AEC contract to expand Idaho Reactor Testing Station . . . 416
AEC gaseous diffusion plant, Portsmouth, Ohio—symposium:
"Pike County site prepared," David J. Brumley . . . 510
"OVEC steam plants furnish 2,200,000 kw," Philip Sporn, H. A. Kammer . . . 516
Correction by H. A. Kammer . . . 605
"A million and a half high strength bolts speed up steel erection," H. H. Nicholson . . . 521
AEC releases complete canned pump information . . . 552
AEC sphere for testing submarine prototype engine . . . 118
Atomic power station to be built near Pittsburgh . . . 479
"Barytes aggregate and grout intrusion method used in shield for materials testing reactor," Lewis Narrow . . . 292
City planners discuss zoning for atomic energy plants . . . 831
"Development of nuclear power for peaceful purposes," Henry D. Smyth . . . 224
Duquesne Light Co. to build atomic power plant . . . 263
EJC urges more use of engineers in atomic department . . . 397
First atomic-powered submarine is launched . . . 189
Fort Belvoir to have package power reactor . . . 697
Heavy-particle accelerators authorized at two colleges . . . 555
Huge accelerator at Brookhaven . . . 118
"Moving 1,300-ton atomic power plant," Daniel J. Barrows . . . 802
Nuclear engineers and scientists form society . . . 755
Nuclear Notes
I. Role of the civil engineer . . . 339
II. Tracer applications . . . 415
III. Structure of the atom . . . 482
IV. Nuclear particles and rays . . . 558
V. Natural radioactivity (Part I) . . . 625
VI. Natural radioactivity (Part 2) . . . 699
VII. Nuclear reactions . . . 758
VIII. Neutron reactions and fission . . . 844
Powerful proton accelerator is placed in operation . . . 334
Radiation exposure from radiant heating . . . 839
Small nuclear power plant developed for military use . . . 265
Westinghouse builds atomic equipment plant . . . 191

**AWARDS AND PRIZES**

ASTM award to honor memory of F. E. Richart . . . 339
Essay contest for young engineers announced . . . 53
Photogrammetric Award to R. E. Hagenhoff . . . 321
Two contractors receive Moles' construction awards . . . 188
Thomas J. Walsh and Carl B. Jansen, winners of 1955 Moles awards . . . 843
Washington Award to Lillian Gilbreth . . . 319
*See also* ASCE Awards and Prizes

**BEAMS**

"Continuity—asset or liability?" Anthony Pordley . . . 462
Discussion by Norman B. Jones . . . 605
Discussion by T. R. Higgins . . . 681
Discussion by Ralph W. Stewart . . . 682
Discussion by Marvin A. Larson . . . 682
"Continuous beams analyzed by slope increments," F. A. Wallace . . . 816
"Nomographs for rapid design of bearing plates," I-Tan Yu . . . 172
"Stirrup spacing in beams rapidly determined," Jack Moyse (Oct. '53) . . . 105
Discussion by Robert A. Hoff . . . 105
Correction by Jack Moyse . . . 249
Discussion by Ward M. Dobbin . . . 392
Discussion by Allen H. Brownfield . . . 392
"Stirrups spaced by simple methods," Sven G. Roeblad . . . 679

**BID PRACTICE**

*See* ASCE Bid Practice

**BOLTS, HIGH-STRENGTH**

"A million and a half high strength bolts speed up steel erection at AEC Portsmouth plant," H. H. Nicholson . . . 521

**BRICK**

Brick and tile industry to have research center . . . 696
"Reinforced brick masonry chosen for California V. A. hospital," Roy E. Guard . . . 668
Discussion by C. J. Derrick . . . 817

**BRIDGES**

AISC awards prizes for beautiful bridges opened to traffic in 1953 . . . 753
Anti-glare panels on Raritan River Bridge . . . 696
Bridge across Pepacton Reservoir, N.Y., nears completion . . . 838
Bridge at Delaware Water Gap is opened to traffic . . . 116
"Bridge design guided by esthetics as well as function:" E. W. Wendell (Nov. 1953) . . . 464
Discussion by author . . . 839
Contract for Hampton Roads crossing let . . . 620
Contract let for Delaware River Bridge superstructure . . . 194
Contract let for piers for Newark Bay bridge . . . 554
Deck truss bridge to span Hudson near Kingston, N.Y. . . . 249
Discussion on error in AASHO bridge specifications, Herbert A. Sawyer, Jr. . . . 56
Duwamish River Bridge contract awarded . . . 229
"Fifty-year dream nears reality" (Mackinac Straits Bridge), C. H. Gronquist . . . 454
"Fixed bents for Texas highway bridge," Randle B. Alexander . . . 376
"High-level cantilever bridge spans Savannah River," Alfred Hedefine, Thomas R. Kuesel . . . 235
"Hollow precast concrete units of great size form bridge substructure" (Richmond-San Rafael Bridge), Ben C. Gerwick . . . 334
Huge haunch girders placed in Raritan River Bridge . . . 415
Long prestressed concrete bridge spans Danube Valley . . . 412
Modernization of Brooklyn Bridge completed . . . 621
New projects to relieve Golden Gate Bridge traffic . . . 119
Portable Army Bridge . . . 621
Prestressed concrete bridge to span Lake Pontchartrain . . . 188
San Marcos Bridge (El Salvador)—a symposium:
"A prophetic design in an out-of-the-way place," Blair Birdsall . . . 574
"'Cable-truss' design greatly increases stiffness," Norman J. Sollenberger . . . 576
"Anchorage excavation tests versatility of wellpoints," Byron J. Prugh . . . 580
"Cable erection complicated by floods and tropical climate," H. W. Hills . . . 582
"Construction methods adapted to local labor," John E. Nixon . . . 584
Tampa Bay Bridge is opened to traffic . . . 695
Ten-mile Savannah River Bridge project is dedicated . . . 752
Work progresses on Harlem River twin-lift bridge . . . 188
*See also* Concrete, Precast and Prestressed

**BUILDING CODES**

Building construction code for multiple dwellings . . . 191
"Performance type of building code gives scope for engineering ingenuity," Edward J. McGrew, Jr. . . . 509

**BUILDINGS**

Aluminum facing placed in less than ten hours . . . 482
Building researchers to study modular measure . . . 755
"Concrete and steel framing combined in wide-open bank building" (for Manufacturers Trust Co., New York), Walter H. Weiskopf and John W. Pickworth . . . 240
Construction pushed on unique Chicago skyscraper project . . . 844
Contract given for new Ford building . . . 413
Corlears Hook Apartment Project, New York—symposium:
"Compressed concrete pedestal piles form foundation," J. H. Thornley . . . 783
"Reinforced concrete building 20 stories high," Maurice Barron, Nicholas Farkas . . . 788
"Denver Club Building incorporates latest structural features," J. A. Crowley . . . 567
"Derrick hoisted forms save time and money," M. J. Colarusso . . . 16
"Fast precasting schedule for record-size Marine Corps warehouses at Albany, Ga.," John A. Dominy, Charles C. Zollman, Henon Pearce . . . 525
Hartford Statler makes first use of metal-glass walls . . . 263
"Heavy building and crane loads carried by 100-ft K-trusses" (Wyman-Gordon plant at North Grafton, Mass.), James R. Kelsey, Frederick T. Comstock, Jr. . . . 718
"Long-span prestressed concrete beams used in Army field house" (Germany), Robert E. Snetzer . . . 217
Discussion by Mr. Snetzer . . . 393
Discussion by Uno Kula . . . 393
Discussion by Myle J. Holley, Jr. . . . 542
Discussion by Edward C. Holt, Jr. . . . 542
"Materials combined to advantage—concrete in compression, steel in tension" (in Raleigh, N.C., Livestock Judging Pavilion), Fred N. Severud . . . 152
New York City to have convention hall . . . 51
"Nine-story prestressed concrete building erected in Germany," Gustave P. Magnel . . . 796
Preassembled semisphere building at Longview, Tex. . . . 194
"Precast and prestressed members form skeleton of multi-story office building," Fritz Kramrisch . . . 22
"Reinforced brick masonry chosen for California V. A. hospital," Roy E. Guard . . . 668
Discussion by C. J. Derrick . . . 817
Socony Vacuum Building to be erected in New York . . . 335
Structural pipe used for plant addition . . . 52
"Thin-shell arch selected for Denver Coliseum," Anton Tedesko . . . 448
*See also* Floors

**BUREAU OF STANDARDS**

Upheld in battery additive tests . . . 50

## CABLES

"Cable erection for San Marcos Bridge in El Salvador complicated by floods and tropical climate," H. W. Hills . . . 582
"Cable-truss" design greatly increases stiffness for San Marcos Bridge in El Salvador," Norman J. Sollenberger . . . 576
Correction by author . . . 682

## CANALS

"The Panama Canal problem," report to Congress by 15 engineers and others . . . 460
Discussion by Ole P. Erickson . . . 680
"Sloping-sill sand screens exclude silt from Egyptian irrigation canals," Serge Leliavsky . . . 170
Discussion by Harold Tults . . . 391
Closure by Mr. Leliavsky . . . 605

## CAUSEWAY

Causeway to connect Nova Scotia and Cape Breton . . . 117

## COAL RECOVERY

"Six-million-dollar plant recovers fine coal from Susquehanna River," Paul Levin, D. I. Smith . . . 435
Discussion by R. T. Lassiter . . . 541
Discussion by A. Casagrande . . . 604

## COLLECTIVE BARGAINING

"Forced to join a union? It can happen to you," L. Stewart McCoy . . . 453
Discussion by Francis G. Yates . . . 604
*See also* ASCE, Collective Bargaining

## COLUMNS

Column encasement placed by pumping method . . . 31
"Nomographs for rapid design of bearing plates," I-Tan Yu . . . 172
"Reinforced concrete columns quickly designed by chart," R. L. Sanks . . . 603

## COMPETITIVE BIDDING

AICE opposes bidding on price basis . . . 817
"Competitive bidding for professional service not in the public interest," William N. Carey . . . 296

## CONCRETE

ACI celebrates golden anniversary with Denver meeting . . . 261
Column encasement placed by pumping method . . . 31
Concrete withstands ravages of twenty centuries . . . 53
"Entrained air benefits lightweight aggregate concrete," Francis J. Mardulier . . . 24
"Good concrete made with coral and sea water," D. Lee Narver—I. Coral for aggregate . . . 654
II. Sea water for concrete . . . 725
N.Y. Concrete Industry Board acts to improve concrete . . . 411
N.Y. Concrete Industry Board dines at bottom of Hudson . . . 479
"Reinforced concrete buildings 20 stories high in Corlears Hook Project, New York," Maurice Barron, Nicholas Farkas . . . 788
Rolled wire fabric used on asphaltic concrete job . . . 418
"Roof of vermiculite concrete poured on insulation board" . . . 389
"Simplifying compression reinforcing design," Jack Moyse . . . 247
Discussion by Norman B. Jones . . . 464
"Stirrups spaced by simple methods," Sven G. Roehlad . . . 679

## CONCRETE, PRECAST

"Fast precasting schedule for record-size Marine Corps warehouses at Albany, Ga.," John A. Dominy, Charles C. Zollman, Henon Pearce . . . 525
"Hollow precast concrete units of great size form bridge substructure" (Richmond-San Rafael Bridge), Ben C. Gerwick . . . 235
"Precast and prestressed members form skeleton of multi-story office building," Fritz Kramrisch . . . 22

## CONCRETE, PRESTRESSED

"Long-span prestressed concrete beams used in Army field house" (Germany), Robert E. Snetzer . . . 217
Discussion by Mr. Snetzer . . . 393
Discussion by Uno Kula . . . 393
Discussion by Myle J. Holley, Jr. . . . 542
Discussion by Edward C. Holt, Jr. . . . 542
"Materials combined to advantage—concrete in compression, steel in tension" (in Raleigh, N.C. Livestock Judging Pavilion)," Fred N. Severud . . . 152
"Nine-story prestressed concrete building erected in Germany," Gustave P. Magnel . . . 796
"Precast and prestressed members form skeleton of multistory office building," Fritz Kramrisch . . . 22
Prestressed concrete bridge to span Lake Pontchartrain . . . 621
Prestressed concrete experts confer in Toronto . . . 192
"Prestressed deck proves cheapest for new Hoboken pier," Theodore O. Blaschke, David A. Hopkins . . . 94
"Prestressing rehabilitates concrete water tank," Alfred J. Ryan . . . 446

## CONCRETE, THIN-SHELL

Thin concrete shells studied at MIT conference . . . 556
"Thin-shell arch selected for Denver Coliseum," Anton Tedesko . . . 448

## CONSERVATION

Resources of U.S. studied at Conservation Conference . . . 50

## CONSTRUCTION COST

"Cost index developed by California Division of Highways proves its value," Richard H. Wilson . . . 82
"Standard proposed for indicating the precision of construction cost estimates," George Wrigley, Jr. . . . 150

## CONSTRUCTION EQUIPMENT

All-track vehicles for use in muskeg areas . . . 560
Big machines speed work on AEC Portsmouth plant . . . 118
Big shovel digs in on West Virginia Turnpike project . . . 558
Caterpillar steps up power of new standard models . . . 844
Caterpillar Tractor builds new plant at Decatur, Ill. . . . 843
Caterpillar Tractor to have new plant . . . 338
Company formed to make concrete pipe and piles . . . 479
Construction equipment to be leased by Clark Co. . . . 621
Crossing muskeg then and now, discussion . . . 680
Dorr Co. and Oliver United Filters merge . . . 756
Industry meets in New York . . . 188
International Harvester to expand its line . . . 116
Marion Power Shovel Co. acquires Osgood Co. . . . 552
Modern machines speed Ohio Turnpike work . . . 839
New track type tractor features twin diesel engines and high horsepower . . . 754
"Power cranes and shovels—I. Capital investment and work capacity," E. O. Martinson . . . 806
"Small delays—a big problem on highway construction jobs," Fred B. Farrell . . . 161
Something new on wheels—the Rhino . . . 696

## CONSTRUCTION INDUSTRY

AGC holds 35th Annual Convention . . . 265
ASCE labor statement endorsed by AGC . . . 842
AGC nominates new officers and takes action on industrial problems at mid-year meeting . . . 756
Bidding competition stiff on Long Island . . . 625
"Construction—the engineer's challenge," Carl B. Jansen . . . 793
Merritt-Chapman & Scott acquires Canadian company . . . 754

## CONSTRUCTION METHODS

"A contractor reviews his headaches at Clark Hill Powerhouse," W. A. Giddings . . . 158
"Construction methods adapted to local labor on San Marcos Bridge in El Salvador," John E. Nixon . . . 584
"Construction problems are mainly concerned with public relations" (on Atlanta Freeway), B. P. McWhorter . . . 147

## CONSTRUCTION VOLUME

Another record building year predicted for 1955 . . . 752
Commercial building boom forecast for 1954 . . . 334
Construction activity sets new record in 1953 . . . 119
High construction levels forecast for 1954 . . . 53
Current activity reported . . . 54, 191, 260, 335, 412, 478, 553, 622, 695, 754, 838
Record high construction levels forecast for 1954 . . . 555

## CORPS OF ENGINEERS, U.S. ARMY

Army consolidates its Division offices . . . 480
Army Engineers complete 190 military projects . . . 190
"Buford Dam—Corps of Engineers builds multi-purpose construction near Atlanta, Ga.," Carl E. Bentzel . . . 164
"Buford Dam—Features of chief construction interest," Charles A. Jackson, Jr. . . . 167
Contract given for Labrador air base . . . 480
New Army Civil Works authorized . . . 696
Portable Army bridge . . . 119
To build Signal Corps station in Eritrea . . . 840
Waterways Experiment Station observes 25th anniversary . . . 181

## CORROSION

"Borax solutions found to inhibit rusting," Fred W. Blaisdell . . . 537

## CORRUGATED SHEETS

"Sectional properties of corrugated sheets determined by formula," Don S. Wolford . . . 103

## CUTOFFS

"Navigation maintained during construction of Smithland Cutoff and Levee" (on Black River), W. H. Holland . . . 90

## DAMS

African dam to go into operation . . . 336
"Buford Dam—Corps of Engineers builds multi-purpose construction near Atlanta, Ga.," Carl E. Bentzel . . . 164
"Buford Dam—Features of chief construction interest," Charles A. Jackson, Jr. . . . 167
Congress on Large Dams to be held in Paris in 1955 . . . 546
"Connell Dam provides water supply for Alaska's first pulp mill," William D. Shannon, William L. Shannon . . . 359
Engineer Board approves Warrior River reservoirs . . . 337
"Faulted foundation complicates construction of Folsom Dam," F. Kochis, Horace A. Johnson . . . 659
Fort Randall Dam produces first power . . . 336
"Foundation difficulties and high water overcome at St. Anthony Falls Dam and Lock on Mississippi," Duane R. Cady . . . 505
Papers for Fifth Congress on Large Dams due soon . . . 179
"Preliminary sections determined for concrete gravity dams," David D. Congleton . . . 390
Author's correction . . . 542
Discussion by Gurmukh S. Sarkaria . . . 818
Author's comments . . . 818
Steel forms speed concreting on Chief Joseph Dam . . . 411
U.S. firms receive Australian dam contract . . . 410

## DEFENSE PROGRAM

Alaska defense construction is 70 percent complete . . . 52
Industrial College of Armed Forces invites participation . . . 337
"The pipeline carries the punch," S. D. Sturgis, Jr. . . . 811
Three contractors to build Spanish bases . . . 119

## DIKES

"Dutch close tidal breach at Ouwerkerk," Ira A. Hunt, Jr., A. Volker . . . 647

## DREDGING

Mighty dredge launched in Canadian waters . . . 756
"Navigation maintained during construction of Smithland Cutoff and Levee" (on Black River), W. H. Holland . . . 90
Perini buys Bay State Dredging & Contracting Co. . . . 621

## DRILLING

Offshore drilling platform developed for tidelands oil prospecting . . . 699

## ECONOMICS OF ENGINEERING

"Small delays—a big problem on highway construction jobs," Fred B. Farrell . . . 161

## EDUCATION

"American engineers can learn much from the French," discussion by Louis Aelred Volse . . . 741
Engineering registration at M.I.T. reported high . . . 52
"Inadequate pre-college training imperils nation's future," S. D. Sturgis, Jr. . . . 299
International Road Educational Foundation set up . . . 557
*See also* American Society for Engineering Education, Awards and Prizes, Engineers Council for Professional Development, Fellowships, and department "New in Education"

## EMPLOYMENT

Discussion of compensation for engineers working in Middle East, E. A. Abdun-Nur . . . 308
*See also* department, "Positions Announced"

## ENGINEERING EDUCATION

EUSEC Conference studies engineering education . . . 829

## ENGINEERING FOUNDATION

Research in structural joint design reported . . . 107

## ENGINEERING MANPOWER

*See* Engineers Joint Council

## ENGINEERING SOCIETIES

AIEE elects new officers . . . 479
Electrical Engineers name N. S. Hibshman secretary . . . 410
Guide issued by Joint Committee of design professions . . . 547

Moles elect new officers . . . 411
San Diego Engineering Council has active year . . . 546

**ENGINEERING SOCIETIES LIBRARY**

Bibliography on filing for engineering offices . . . 471

**ENGINEERING TRUSTEES, INC.**

*See* ASCE, Engineering Societies Building

**ENGINEERS COUNCIL FOR PROFESSIONAL DEVELOPMENT**

Awarding of professional degrees studied by ECPD . . . 623
Five Cincinnati Societies aid development program . . . 252
Issues revised booklet on engineering . . . 690
Report issued . . . 111

**ENGINEERS AND ENGINEERING**

Book "Billings and Water Power in Brazil," recommended in discussion by A. P. Greensfelder . . . 173
Cleveland to have Engineering Center . . . 256
New "Who's Who in Engineering" is out . . . 336

**ENGINEERS JOINT COUNCIL**

"A concept of unity and a look at the past," Thomas A. Marshall, Jr . . . 364
Annual Report for 1953 available . . . 319
Changes constitution . . . 546
Changes in staff announced . . . 397
"Contributions of EJC on a profession wide basis," Thomas A. Marshall, Jr . . . 444
EJC and Edison Foundation study engineer shortage . . . 833
"EJC geared for fast action" . . . 530
Engineering Scientific Manpower Agencies back Appley report . . . 252
Issues study of income of engineers . . . 400
Officers for 1954 appointed . . . 111
Reports St. Lawrence River Joint Board contains only one engineer . . . 470
Schedules general banquet and assembly . . . 833
To work more closely with national manpower group . . . 111
Urges more use of engineers in atomic developments . . . 397
Urges reconsideration of Upper Colorado Project . . . 469

**EXPLOSIVES**

"Reinforced concrete culvert pipe cut by explosives" . . . 813

**FELLOWSHIPS**

Fellowships in jet propulsion available . . . 53

**FILMS AVAILABLE**

Hydraulics research film available . . . 120
*See also* department, Films Available

**FLOORS**

Weight-saving floor construction used in Denver skyscraper . . . 337

**FLUID MECHANICS**

*See* Hydraulics

**FOREIGN ENGINEERING**

African dam to go into operation . . . 336
Arabian engineers hold Fifth Conference . . . 412
British Columbia power project starts operation . . . 339
Canadian construction company established . . . 410
Discussion of compensations for engineers working in Middle East, E. A. Abdun-Nur . . . 308
"Dutch close tidal breach at Ouwerkerk," Ira A. Hunt, Jr., A. Volker . . . 647
Ecuador gets International Bank funds for road program . . . 188
Engineering study of Jordan Valley extended . . . 117
"Ethiopia—land of promise," Perry A. Fellows . . . 283
"High-type sanitary facilities provided in Venezuelan wilderness," Carl A. Arenander, Daniel A. Okun . . . 220
Japanese dike destroyed by typhoon . . . 122
"Jungle no barrier to aerial mappers of Cerro Bolivar," Thomas C. Oftelie . . . 457
Major Brazilian contract goes to New York firm . . . 263
New Canadian projects spotlighted at EIC annual meeting . . . 416
Prestressing reduces cost of Belgian hangar project . . . 51
Puerto Ordaz ore-handling system now in operation . . . 414
Three contractors to build Spanish bases . . . 119
U.S. firms receive Australian dam contract . . . 410
U.S. firm to build large Venezuela power plant . . . 412

**FORMS**

"Derrick-hoisted forms save time and money," M. J. Colarusso . . . 16
"Fixed bents for Texas highway bridge," Randle B. Alexander . . . 454

**FOUNDATIONS**

"Compressed concrete pedestal piles form foundation for Corlears Hook Apartment Project, New York," J. H. Thornley . . . 783
"Design of continuous foundation still demands engineering judgment," Thomas H. Dale, Jr . . . 245
"Moving 1,300-ton atomic power plant," Daniel J. Barrows . . . 802

**GARAGES**

Chicago opens huge underground garage . . . 694
Houston, Tex., to have large parking garage . . . 758
"St. Mary's Square underground garage under construction," John J. Gould . . . 302

**GREAT LAKES**

"Forecasting Great Lakes levels aids power and navigation," Louis D. Kirshner . . . 98
Discussion by Mr. Kirshner . . . 309

**HANGARS**

"Long prestressed steel truss erected for Belgian hangar," Gustave P. Magnel . . . 652
Pittsburgh Airport hangar sets new span record . . . 264
Prestressing reduces cost of Belgian hangar project . . . 51

**HIGHWAY RESEARCH BOARD**

Data on landslides sought . . . 340
Engineers honored by . . . 189
WASHO Road Test completed . . . 478

**HIGHWAYS**

"A highway and transportation plan emerges" (for Atlanta Freeway), M. E. Cox . . . 141
ARBA discusses interagency cooperation at county officials meeting . . . 753
ARBA holds Atlantic City meeting . . . 116
Auto toll tunnel under Continental Divide voted . . . 260
"Buildings no barrier to Chicago's Congress Street Superhighway," V. E. Gunlock . . . 5
Committee to advise on President's road program . . . 694
"Construction problems are mainly concerned with public relations" (on Atlanta Freeway), B. P. McWhorter . . . 147
"Cost index developed by California Division of Highways proves its value," Richard H. Wilson . . . 82
"Detroit pushes expressway system through congested urban area," H. C. Coons . . . 18
Discussion correcting item on Boston Aerial Highway (Dec '53) . . . 105
"Expressway crosses New Haven harbor front on hydraulic fill," Ernest T. Perkins . . . 439
Federal-state highway relations studied . . . 51
International Road Educational Foundation set up . . . 557
Italy plans five-year expressway program . . . 695
"Location refined and designs made" (for Atlanta Freeway), L. H. Lyle, R. C. Tate . . . 144
"Maintenance of high-speed, high-traffic highways a difficult problem," S. E. Ridge . . . 571
Pan-American Highway Congress meets at Caracas, July 11-21 . . . 266, 620
"Small delays—a big problem on highway construction jobs," Fred B. Farrell . . . 161
Swedish superhighway is opened to traffic . . . 266
VMI host to large Virginia Road Conference . . . 842
Why the U.S. is behind in highway construction . . . 840
Work progresses on Santa Ana-Hollywood Freeway . . . 54
*See also* Bridges, Highway Research Board, Pavements, Toll Roads and Tunnels

**HOUSING**

Housing starts continue at near record levels . . . 696
Housing starts in 1953 remain at record high . . . 193

**HYDRAULICS**

Freeman Fellow finds interesting hydraulic activity abroad . . . 309
"Hydraulic drop as a function of velocity distribution," Charles Grant Edson . . . 814
Hydraulic Laboratory Equipment series:
"Density currents studied in glass-walled flume" (at M.I.T. Laboratory, V), Donald R. F. Harleman . . . 81
"Stokes law confirmed by falling sphere experiment" (at Stanford Univ. Laboratory, VI), John K. Vennard . . . 234
"More research on aerated flow needed," J. M. Robertson . . . 805
"Resistance to flow in smooth pipes found directly," Ralph W. Powell . . . 738
"Theodolite found useful in hydraulic testing (at Penn State Univ.)," A. F. Lehman, J. M. Robertson . . . 740
Waterways Experiment Station observes 25th anniversary . . . 481

**HYDROELECTRIC POWER**

Austria and Germany collaborate on hydropower development . . . 624
Huge power development planned for British Columbia . . . 623
Robert Moses named state power chairman . . . 263
*See also* St. Lawrence Seaway and Power Projects

**HYDROLOGY**

New manual planned by ASCE . . . 470

**INSTRUMENTS**

Discussion on mirror-like globe used as surveying instrument, Thomas Doane Perry . . . 393
Discussion by G. S. Druhot . . . 542
"New deformeter developed for structural model analysis," John P. Cook . . . 538
Discussion by Francis W. Cox . . . 681
Discussion by Otakar Ondra . . . 817
New Swiss tripod for surveying . . . 55
"Recording evaporation gage provides year-round record," W. J. Roberts . . . 678
Swiss instrument firm to be represented in U.S. . . . 622
*See also* Surveying and Mapping

**INSURANCE**

"Applied engineering principles reduce costly accidents," William A. Luna . . . 373
Correction by author . . . 464

**IRON**

Iron-ore production at new high in 1953 . . . 480

**IRRIGATION**

Conference to meet September 9-11 . . . 547
Intermountain Section host to ASCE Irrigation and Drainage Conference, Salt Lake City, Sept. 9-11 . . . 689
"Sloping-sill sand screens exclude silt from Egyptian irrigation canals," Serge Leliavsky . . . 170
Discussion by Harold Tults . . . 391
Closure by Mr. Leliavsky . . . 605

**JETTIES**

"Mixed-in-place piles form jetty to control beach erosion," Norman L. Liver, Erwin C. Mardorf, John C. King . . . 156

**LABOR RELATIONS**

Labor recommendations affect construction . . . 117

**LABORATORIES**

Additional units planned for Brookhaven Laboratory . . . 622
Ames Aeronautical Laboratory gets huge compressor . . . 413

**LEGISLATION**

*See* Engineers Joint Council and department "Notes from the Capital"

**LEVEES**

"Gulf Coast inlet converted to fresh-water reservoir," C. A. Weise . . . 674
Japanese dike destroyed by typhoon . . . 122
"Navigation maintained during construction of Smithland Cutoff and Levee" (on Black River), W. H. Holland . . . 90
*See also* Dikes

**LOCKS**

"Construction difficulties overcome in completing Monongahela Locks No. 2," L. L. Brink . . . 213
"Foundation difficulties and high water overcome at St. Anthony Falls Dam and Lock on Mississippi," Duane R. Cady . . . 505
New twin locks at Pittsburgh to expedite Monongahela River traffic . . . 50

**MAPPING**

*See* Aerial Photography and Surveying and Mapping

**MATHEMATICS**

"Nomogram solves parabolic empirical equations," Steponas Kolupaila . . . 247
"Tables give area of segment and length of arc," Kankichi Taira . . . 307
"Vertical curve elevations found by addition," Curtis R. Taylor . . . 307

**MEETINGS AND CONFERENCES**

International cooperation stressed at Upadi convention . . . 688
Members attend engineering conferences in Brazil . . . 616
Pan-American Highway Congress meets at Caracas, July 11-21 . . . 620
Resources of the United States studied at Conservation Conference . . . 50
Third UPADI Convention scheduled for Brazil . . . 41

**METALS**
Government nickel plant to enlarge its capacity . . . 621

**NAVIGATION**
*See* Locks, Rivers, and St. Lawrence Seaway and Power Projects

**OIL INDUSTRY**
"Extension brings Canadian crude oil to East in pipeline 1,770 miles long," . . . 69
*See also* Pipelines

**ORE-HANDLING**
Puerto Ordaz ore handling system now in operation . . . 414
U.S. Steel ships first ore from Venezuela . . . 119

**PANAMA CANAL**
*See* Canals

**PAVEMENTS**
"Concrete overlay on airfield pavement solves problem of heavier aircraft," H. R. Hallock . . . 664
"Low-cost pavement stretches the maintenance dollar," W. E. Kennedy, W. E. Peebles . . . 677
*See also* Airports, Highways

**PENSTOCKS**
Special steel coupling designed for Garrison Dam Project . . . 841

**PIERS**
Hoboken Pier to provide special unloading facilities . . . 620
"Hollow precast concrete units of great size form bridge substructure" (Richmond-San Rafael Bridge), Ben C. Gerwick . . . 235
"Prestressed deck proves cheapest for new Hoboken pier," Theodore O. Blaschke, David A. Hopkins . . . 94
Wharf and bulkhead shed to replace New York piers . . . 122

**PILING**
"Compressed concrete pedestal piles form foundation for Corlears Hook Apartment Project, New York," J. H. Thornley . . . 783
"Curves give efficiencies of friction pile groups," Irving B. Rau . . . 463
"Mixed-in-place piles form jetty to control beach erosion," Norman L. Liver, Erwin C. Mardorf, John C. King . . . 156
Thin-walled, spiral-weld pipe used for bearing piles on Thruway connecting road . . . 755

**PIPELINES**
"Competition brings economies to the fore in gas pipeline transmission," William B. Poor . . . 720
"Extension brings Canadian crude oil to East in pipeline 1,770 miles long," Clark Root . . . 69
"The pipeline carries the punch," S. D. Sturgis, Jr. . . . 811
Pipeline Conference to be part of Texas Meeting Apr. 9-10 . . . 179
"Resistance to flow in smooth pipes found directly," Ralph W. Powell . . . 738

**PIPING**
L. B. Foster Co. to distribute Taylor Forge foundation pipe . . . 843
"Reinforced concrete culvert pipe cut by explosives" . . . 813

**POWER**
Transactions of World Power Conference ready . . . 833

**POWERHOUSE**
"A contractor reviews his headaches at Clark Hill Powerhouse," W. A. Giddings . . . 158

**POWER PLANTS**
Etiwanda steam station dedicated . . . 335
Navy dedicates huge floating generating plant . . . 625
"New York Transit Authority modernizes East 74th Street steam-electric plant," Marcel P. Aillery . . . 732
"OVEC steam plants furnish 2,200,000 kw for AEC Portsmouth plant," Philip Sporn, H. A. Kammer . . . 516
Correction by H. A. Kammer . . . 605
U.S. firm to build large Venezuela power plant . . . 412
*See also* Atomic energy, Hydroelectric Power, Turbines

**PRESTRESSED CONCRETE**
*See* Concrete, Prestressed

**PROCEEDINGS**
Proceedings papers available as Separates *(see listing and order blank in each issue)*

**PROFESSIONAL ADVANCEMENT**
Discussion on improving public relations by Francis G. Yates . . . 173
*See also* Engineers' Council for Professional Development

**PUMPS AND PUMPING**
AEC releases complete canned pump information . . . 552
Fairbanks-Morse dedicates Kansas City pump plan . . . 484

**PUZZLES AND PROBLEMS**
How Would You Do It? . . . 27,84,160
*See also* "N. G. Neare's Column" *in each issue*

**RADAR**
Islands to be built in Atlantic for radar chain . . . 622

**RAILROADS**
Committee formed to aid railroads . . . 553
World Bank loan to rebuild Mexico rail line . . . 694

**REGISTRATION OF ENGINEERS**
Cooperative ceremony honors new engineering licensees . . . 178
Engineer fined for work without license . . . 481
Engineering registration officials meet in New Orleans . . . 322

**RESEARCH**
*See* Laboratories, National Research Council, and specific subjects

**RESERVOIRS**
"Gulf Coast inlet converted to fresh-water reservoir," C. A. Weise . . . 674
Reservoir improvement to expand Los Angeles supply . . . 265
*See also* Dams

**RIVERS**
"Construction difficulties overcome in completing Monongahela Locks No. 2," L. L. Brink . . . 213
Robert Moses named State power chairman . . . 263
*See also* St. Lawrence Seaway and Power Projects

**ROOFS**
"Roof of vermiculite concrete poured on insulation board" . . . 389
*See also* Concrete, Thin Shell

**RUNOFF**
"Forecasting Great Lakes levels aids power and navigation," Louis D. Kirshner . . . 98
Discussion by Mr. Kirshner . . . 309

**SAFETY DEVICES AND MEASURES**
"Applied engineering principles reduce costly accidents," William A. Luna . . . 373
Correction by author . . . 464
Safety record set on Guam construction job . . . 698

**ST. LAWRENCE SEAWAY AND POWER PROJECTS**
Army engineers to oversee St. Lawrence Seaway work . . . 694
St. Lawrence River Joint Board criticized by EJC . . . 470
St. Lawrence technical staff appointed . . . 553
"St. Lawrence Seaway and Power Projects started," Emerson C. Itschner . . . 709

**SALARIES AND FEES**
Engineers' salary situation studied by Idaho P. E. Society . . . 843
Engineers' starting salaries at new high . . . 266
Engineers' starting salaries up 11 percent this year . . . 51
"The young engineer looks at his economic position," committee report . . . 729
*See also* ASCE, Salaries and Fees

**SAND SCREENS**
"Sloping silt sand screens exclude silt from Egyptian irrigation canals," Serge Leliavsky . . . 170
Discussion by Harold Tults . . . 391
Closure by Mr. Leliavsky . . . 605

**SANITARY ENGINEERING**
Certification of sanitary engineers discussed at ASCE Convention . . . 832
Device measures dry weather sewage flow . . . 418
Government creates Division of Sanitary Engineering Services . . . 336
"High-type sanitary facilities provided in Venezuelan wilderness," Carl A. Arenander, Daniel A. Okun . . . 220
"Our rapidly changing technology—its impact on sanitary engineering," Mark D. Hollis . . . 300
Sewage and water works authorized by NPA in 1952 . . . 53

**SEWAGE TREATMENT**
Engines chosen for Miami sewage treatment plant . . . 260
Erie, Pa., to enlarge its treatment plant . . . 694
"Experimental filters for treating cellulose acetate wastes yield encouraging results," L. W. Roznoy . . . 288
*See also* Atomic Energy

**SEWERS**
"Twin 90-in. concrete pipelines divert storm runoff for Paducah, Ky.," E. E. Bolls, Jr. . . . 386

**SOIL MECHANICS**
Mobilab expedites construction projects . . . 55

**SOILS**
Colorado Section report on Denver subsoils available . . . 618

**STEEL**
Armco Steel acquires southwest steel products . . . 411
"Borax solutions found to inhibit rusting," Fred W. Blaisdell . . . 537
Chicago Bridge & Iron Co. opens new sales office . . . 52
Construction a major market for steel . . . 621
Finished steel shipments set record in 1953 . . . 262
"High-type sanitary facilities provided in Venezuelan wilderness," Carl A. Arenander, Daniel A. Okun . . . 220
Steel company opens new facilities at Ashland, Ky. . . . 623
Steel industry expands plant capacity in 1953 . . . 191
U.S. Steel begins new Delaware Valley plant . . . 339
*See also* Iron, Ore Handling

**STEEL, PRESTRESSED**
"Long prestressed steel truss erected for Belgian hangar," Gustave P. Magnel . . . 652

**STRAINS AND STRESSES**
"Simple models (at Union College) help students to visualize Maxwell's theorem," Anthony Hoadley . . . 31

**STREAM POLLUTION**
"Pittsburgh plans unique project to abate stream pollution," John F. Laboon . . . 12
Raritan River pollution abatement—a symposium:
"Obvious problem takes years to solve," Robert S. Shaw . . . 670
"The Middlesex County program materializes," E. Sherman Chase . . . 672
Sanitary clean-up of Ohio Valley reported . . . 54

**STRESSES**
*See* Strains and Stresses

**STRUCTURAL ENGINEERING**
ASCE Structural Division and Kansas City Section, Structural Conference May 13-14 . . . 253
"Continuity—asset or liability?" Anthony Hoadley . . . 462
Discussion by Norman B. Jones . . . 605
Discussion by T. R. Higgins . . . 681
Discussion by Ralph W. Stewart . . . 682
Discussion by Marvin A. Larson . . . 682
"New deformeter developed for structural model analysis," John P. Cook . . . 538
Discussion by Francis W. Cox . . . 681
Discussion by Otakar Ondra . . . 817
"Sectional properties of corrugated sheets determined by formula," Don S. Wolford . . . 103
*See also* Beams, Columns, Strains and Stresses

**SUBSIDENCE**
"Ground subsides in Houston area," Mason G. Lockwood . . . 370

**SUBWAYS**
Conveyor belt system to replace N.Y.C. shuttle . . . 839
Toronto subway is ready for passengers . . . 189

**SURVEYING AND MAPPING**
Discussion on mirror like globe used as surveying instrument, Thomas Doane Perry . . . 393
Discussion by G. S. Druhot . . . 542
"Finding angle reading errors in long traverses," Dana E. Low . . . 738
"Helicopter revolutionizes topographic mapping of remote areas," Gerald Fitz-Gerald . . . 798
ASCE Manual No. 34, *Definitions of Surveying, Mapping and Related Terms*, issued . . . 616
New Swiss tripod for surveying . . . 55
"On the spot photographs expedite Mount McKinley survey," Bradford Washburn . . . 102
Photogrammetric Engineering firm has new headquarters . . . 120

Twentieth annual meeting of American Society of Photogrammetry . . . 193
"Vertical curve elevations found by addition," Curtis R. Taylor . . . 307
*See also* Aerial Photography

**TANKS**
"Construction program of Philadelphia Suburban Water Company meets unprecedented demand," Francis S. Friel . . . 85
"Prestressing rehabilitates concrete water tank," Alfred J. Ryan . . . 446

**TERMINALS**
New York opens airlines terminal and parking garage . . . 52

**TIMBER**
Wood-treating plant offers expanded service . . . 755

**TOLL ROADS**
Chamber of Commerce urges more toll roads . . . 122
"Chemical sealing stops leakage in tunnels of Pennsylvania Turnpike," C. W. Stickler, Jr., A. Allan, Jr. . . . 722
Contract let for turnpike bridge over Delaware . . . 479
Contracts awarded for Kentucky Turnpike project . . . 552
Contracts awarded for New Jersey Turnpike extension . . . 56
Illinois authorizes toll road studies . . . 843
Modern blasting techniques speed work on New York State Thruway . . . 338
Most of Ohio Turnpike under construction . . . 56
New records set in N.J. Turnpike travel . . . 418
New toll equipment for Pennsylvania Turnpike . . . 338
Pennsylvania Turnpike maps extension . . . 193
"Tough terrain conquered by builders of West Virginia Turnpike," C. H. Peterson . . . 74
Turnpike officials plan for the future . . . 122
West Virginia Turnpike is opened to traffic . . . 697
*See also* Highways

**TOWERS**
"Transmission towers 437 ft high support span of 3,810 ft," George E. Schumann . . . 9
World's tallest steel structure goes up in Oklahoma . . . 624
"World's third tallest structure erected in Greenland—radio transmission tower at Thule," S. D. Sturgis, Jr. . . . 381

**TRAFFIC ENGINEERING**
$750,000 traffic study to be made in New York area . . . 190

**TRANSPORTATION**
Moving sidewalk installed in Jersey City station . . . 480

**TRUSSES**
"Heavy building and crane loads carried by 100-ft K-trusses" (Wyman-Gordon plant at North Grafton, Mass.), James R. Kelsey, Frederick T. Comstock, Jr. . . . 718

**TUNNELS**
Auto toll tunnel under Continental Divide voted . . . 260
"Chemical sealing stops leakage in tunnels of Pennsylvania Turnpike," C. W. Stickler, Jr., A. Allan, Jr. . . . 722
"East Delaware Tunnel construction to be completed six months ahead of time," J. S. Macdonald . . . 28
Several contracts let for Lincoln Tunnel tube . . . 623

**TURBINES**
Cabinet Gorge plant has highest-head propeller turbines . . . 124
Huge turbine to increase capacity of Niagara-Mohawk system . . . 416

**UNITED NATIONS**
UN sponsored conference on electric power in Tokyo . . . 755

**U.S. ARMY**
Quartermaster Research Center opened by Army . . . 758
*See also* Corps of Engineers, U.S. Army

**U.S. GEOLOGICAL SURVEY**
Circular reports sharp rise in world water power . . . 413
Observes its 75th anniversary . . . 410

**U.S. NAVY**
Completes $20,000,000 jet plane center . . . 555
"Fast precasting schedule for record-size Marine Corps warehouses at Albany, Ga.," John A. Dominy, Charles C. Zollman, Henon Pearce . . . 525
Navy dedicates huge floating generating plant . . . 625

**U.S. PUBLIC HEALTH SERVICE**
Engineers needed in PHS Reserve Corps . . . 844
Opens research center . . . 337

**WATER RESOURCES**
Pittsburgh water resources found ample but polluted . . . 338
"Water—a critical material," Gail A. Hathaway . . . 531

**WATER SUPPLY**
Charleston approves Bushy Park Water Project . . . 750
"Connell Dam provides water supply for Alaska's first pulp mill," William D. Shannon, William L. Shannon . . . 359
"East Delaware Tunnel construction to be completed six months ahead of time," J. S. Macdonald . . . 28
Houston ground-water level is declining . . . 262
Many cities affected by drought of 1953 . . . 560
More Colorado River water for San Diego . . . 752
Reservoir improvement to expand Los Angeles supply . . . 265
Southern California water supply condition critical . . . 697
Supreme Court upholds N.Y.C. fight for pure water . . . 478
*See also* Stream Pollution

**WATER TREATMENT**
"Dayton's water treatment plant pays its own way," Loyd C. Huffman . . . 1
Flash-type distilling plant is built for the Navy . . . 339
"Reclamation of saline waters by electrodialysis shows promise," Rolf Eliassen . . . 366

**WATERWAYS**
*See* Navigation, Rivers, St. Lawrence Seaway and Power Projects

**WATER WORKS**
"Construction program of Philadelphia Suburban Water Company meets unprecedented demand," Francis S. Friel . . . 85

**WELDING**
American Welding Society elects new officers . . . 840

**WELLPOINTS**
"Anchorage excavation tests versatility of wellpoints for San Marcos Bridge in El Salvador," Byron J. Prugh . . . 580

# Name Index

**ABDUN-NUR, E. A.**
Discussion of compensations for engineers working in Middle East . . . 308

**AILLERY, MARCEL P.**
"New York Transit Authority modernizes East 74th Street steam-electric plant," Marcel P. Aillery . . . 732

**ALEXANDER, RANDLE B.**
"Fixed bents for Texas highway bridge" . . . 454

**ALLAN, A., JR.**
"Chemical sealing stops leakage in tunnels of Pennsylvania Turnpike," C. W. Stickler, Jr., co-author . . . 722

**ARENANDER, CARL A.**
"High-type sanitary facilities provided in Venezuelan wilderness," Daniel A. Okun, co-author . . . 220

**BARRON, MAURICE**
"Reinforced concrete buildings 20 stories high in Corlears Hook Apartment Project, New York," Nicholas Farkas, co-author . . . 788

**BARROWS, DANIEL J.**
"Moving 1,300-ton atomic power plant" . . . 802

**BAUER, S. A.**
ASCE action on competitive bidding approved . . . 680

**BEAM, CARL E.**
Retires from ASCE staff . . . 106

**BAXTER, SAMUEL S.**
"Philadelphia's International Airport mirrors design progress" . . . 587

**BENTZEL, CARL E.**
"Buford Dam—Corps of Engineers builds multi-purpose structure near Atlanta, Ga. . . . 164

**BILLINGS, ASA W. K.**
Book "Billings and Water Power in Brazil," recommended in discussion by A. P. Greensfelder . . . 173

**BIRDSALL, BLAIR**
"A prophetic design in an out-of-the-way place" (San Marcos Bridge in El Salvador) . . . 574

**BLAISDELL, FRED W.**
"Borax solutions found to inhibit rusting" . . . 537

**BLASCHKE, THEODORE O.**
"Prestressed deck proves cheapest for new Hoboken pier," David A. Hopkins, co-author . . . 94

**BOLLS, E. E., JR.**
"Twin 90-in. concrete pipelines divert storm runoff for Paducah, Ky." . . . 386

**BRINK, L. L.**
"Construction difficulties overcome in Monongahela Locks No. 2" . . . 213

**BROOKS, EARNEST G.**
Addresses Virginia surveyors . . . 252

**BROWNFIELD, ALLEN H.**
Discussion on "Stirrup spacing in beams rapidly determined," Jack Moyse (Oct. '53) . . . 392

**BRUMLEY, DAVID J.**
"Pike County site prepared" for AEC'S Portsmouth, Ohio, plant . . . 510

**CADY, DUANE R.**
"Foundation difficulties and high water overcome at St. Anthony Falls Dam and Lock on Mississippi" . . . 505

**CAREY, WILLIAM N.**
"Competitive bidding for professional service not in the public interest" . . . 296

**CASAGRANDE, A.**
Discussion of "Six-million-dollar plant recovers fine coal from Susquehanna River," Paul Levin, D. I. Smith . . . 604

**CHASE, E. SHERMAN**
"Raritan River pollution abatement—the Middlesex County program materializes" 672

**COLARUSSO, M. J.**
"Derrick hoisted forms save time and money" 16

**COMSTOCK, FREDERICK T., JR.**
"Heavy building and crane loads carried by 100-ft K-trusses" (Wyman-Gordon plant at North Grafton, Mass.), James R. Kelsey, co-author 718

**CONGLETON, DAVID D.**
"Preliminary sections determined for concrete gravity dams" 390
Author's correction 542
Author's comments 818

**COOK, JOHN P.**
"New deformeter developed for structural model analysis" 538

**COONS, H. C.**
"Detroit pushes expressway system through congested urban area" 18

**COX, M. E.**
"A highway and transportation plan emerges" (for Atlanta Freeway) 141

**COX, FRANCIS W.**
Discussion of "New deformeter developed for structural model analysis," John P. Cook 681

**CROWLEY, J. A.**
"Denver Club Building incorporates latest structural features" 567

**CUSHING, A. T.**
Crossing muskeg then and now 680

**DALE, THOMAS H., JR.**
"Design of continuous foundation still demands engineering judgment" 245

**DERRICK, C. J.**
Discussion on "Reinforced Brick Masonry Chosen for California V.A. Hospital," Roy E. Guard 817

**DOBBIN, WARD M.**
Discussion advocates special slide rule for stirrup spacing 249

**DOMINY, JOHN A.**
"Fast precasting schedule for record-size Marine Corps warehouses at Albany, Ga.," Charles C. Zollman, Henon Pearce, co-authors 525

**DRUHOT, G. S.**
Discussion on mirror like globe 542

**EDSON, CHARLES GRANT**
"Hydraulic drop as a function of velocity distribution" 814

**EHLERS, JOSEPH H.**
"From the Nation's Capital" 42, 108, 180, 254, 324, 408, 476, 551, 692, 751, 837

**ELIASSEN, ROLF**
"Reclamation of saline waters by electrodialysis shows promise" 366

**ERICKSON, OLE P.**
Discussion of "The Panama Canal problem," report to Congress by 15 engineers and others 680

**FAIRBAIRN, JOHN M. R.**
Honorary Member, dies 546

**FARKAS, NICHOLAS**
"Reinforced concrete buildings 20 stories high," Maurice Barron, co-author 788

**FARRELL, FRED B.**
"Small delays—a big problem on highway construction jobs" 161

**FARWELL, C. A.**
Discussion correcting item on Boston Aerial Highway (Dec. '53) 105

**FELLOWS, PERRY A.**
"Ethiopia—land of promise" 283

**FITZGERALD, GERALD**
"Helicopter revolutionizes topographic mapping of remote areas" 798

**FOLK, SAMUEL B.**
Discussion praises report of ASCE Committee on Engineering Education 249

**FRICK, ELEANOR H.**
Former office manager dies 831

**FRIEL, FRANCIS S.**
"Construction program of Philadelphia Suburban Water Company meets unprecedented demand" 85

**GERWICK, BEN C., JR.**
"Hollow precast concrete units of great size form bridge substructure" (Richmond-San Rafael Bridge) 235

**GIDDINGS, W. A.**
"A contractor reviews his headaches at Clark Hill Powerhouse" 158

**GLIDDEN, WILLIAM ROY**
"New President deals with current Society issues in inaugural address" 716
President to be inducted at Annual Convention 685

**GOULD, JOHN J.**
"St. Mary's Square underground garage under construction" 302

**GREENSFELDER, A. P.**
Recommends book, "Billings, and Water Power in Brazil," in discussion 173

**GRONQUIST, C. H.**
"Fifty-year dream nears reality—Mackinac Straits Bridge" 229

**GUARD, ROY E.**
"Reinforced brick masonry chosen for California V.A. hospital" 668

**GUNLOCK, V. E.**
"Buildings no barrier to Chicago's Congress Street Superhighway" 5

**HALLOCK, H. R.**
"Concrete overlay on airfield pavement solves problem of heavier aircraft" 664

**HARLEMAN, DONALD R. F.**
"Density currents studied in glass-walled flume" (at M.I.T.) 81

**HASTINGS, E. M.**
Past-President, dies 832

**HATHAWAY, GAIL A.**
"Water—a critical material" 534

**HEDEFINE, ALFRED**
"High level cantilever bridge spans Savannah River," Thomas R. Kuesel, co-author 376

**HIGGINS, T. R.**
Discussion of "Continuity—asset or liability?" Anthony Hoadley 681

**HILLS, H. W.**
"Cable erection for San Marcos Bridge in El Salvador complicated by floods and tropical climate" 582

**HOADLEY, ANTHONY**
"Continuity—asset or liability?" 162
"Simple models (at Union College) help students to visualize Maxwell's theorem" 31

**HOFF, ROBERT A.**
Discussion on "Stirrup spacing in beams rapidly determined," Jack Moyse (Oct. '53) 105

**HOLLAND, CLIFFORD**
Memorial bust unveiled 41

**HOLLAND, W. H.**
"Navigation maintained during construction of Smithland Cutoff and Levee" (on Black River) 90

**HOLLEY, MYLE J., JR.**
Discussion of "Long span prestressed concrete beams used in Army field house" (Germany), Robert E. Snetzer 542

**HOLLIS, MARK D.**
"Our rapidly changing technology—its impact on sanitary engineering" 300

**HOLT, EDWARD C., JR.**
Discussion of "Long span prestressed concrete beams used in Army field house" (Germany), Robert E. Snetzer 542

**HOPKINS, DAVID A.**
"Prestressed deck proves cheapest for new Hoboken pier," Theodore O. Blaschke, co-author 94

**HUFFMAN, LOYD C.**
"Dayton's water treatment plant pays its own way" 1

**HUNT, IRA. A., JR.**
"Dutch close tidal breach at Ouwerkerk," A. Volker, co-author 647
Freeman Fellow, finds interesting hydraulic activity abroad 309

**I-T'AN YU**
"Nomographs for rapid design of bearing plates" 172

**ITSCHNER, EMERSON C.**
"St. Lawrence Seaway and Power Projects started" 709

**JACKSON, CHARLES A.**
"Buford Dam—features of chief construction interest" 167

**JANSEN, CARL B.**
"Construction—the engineer's challenge" 793

**JOHNSON, HORACE A.**
"Faulted foundation complicates construction of Folsom Dam," F. Kochis, co-author 659

**JONES, NORMAN B.**
Discussion of "Continuity—asset or liability?" Anthony Hoadley 605
Discussion of "Simplifying compression reinforcing design," Jack Moyse 464

**KAMMER, H. A.**
"OVEC steam plants furnish 2,200,000 kw for AEC Portsmouth plant," Philip Sporn, co-author 516
Correction 605

**KELSEY, JAMES R.**
"Heavy building and crane loads carried by 100-ft K-trusses," Frederick T. Comstock, Jr., co-author 718

**KENNEDY, W. E.**
"Low-cost pavement stretches the maintenance dollar," W. E. Peebles, co-author 677

**KING, JOHN C.**
"Mixed-in-place piles form jetty to control beach erosion," Norman L. Liver, Erwin C. Mardorf, co-authors 156

**KIRSHNER LOUIS D.**
"Forecasting Great Lakes levels aids power and navigation" 98
Discussion by Mr. Kirshner 309

**KOCHIS, F.**
"Faulted foundation complicates construction of Folsom Dam," Horace A. Johnson, co-author 659

**KOLUPAILA, STEPONAS**
"Nomogram solves parabolic empirical equations" 247

**KRAMRISCH, FRITZ**
"Precast and prestressed members form skeleton of multi-story office building" 22

**KUESEL, THOMAS R.**
"High level cantilever bridge spans Savannah River," Alfred Hedefine, co-author 376

**KULA, UNO**
Discussion of "Long span prestressed concrete beams used in Army field house," Robert E. Snetzer 393

**LABOON, JOHN F.**
"Pittsburgh plans unique project to abate stream pollution" 12

**LAND, WILBUR E.**
"How would you do it?" 84, 248

**LARSON, MARVIN A.**
Discussion of "Continuity—asset or liability?" Anthony Hoadley 682

**LASSITER, R. T.**
Discussion of "Six million dollar plant recovers fine coal from Susquehanna River," Paul Levin, D. I. Smith . . . 541

**LeDOUX, J. C.**
"How would you do it?" . . . 160

**LEHMAN, A. F.**
"Theodolite found useful in hydraulic testing" (at Penn. State Univ.), J. M. Robertson, co-author . . . 740

**LELIAVSKY, SERGE**
"Sloping sill sand screens exclude silt from Egyptian irrigation canals" . . . 170
Closure of discussions . . . 605

**LEVIN, PAUL**
"Six million dollar plant recovers fine coal from Susquehanna River," D. I. Smith, co-author . . . 435

**LIVER, NORMAN L.**
"Mixed in-place piles form jetty to control beach erosion," Erwin C. Mardorf, John C. King, co-authors . . . 156

**LOCKWOOD, MASON G.**
"A hard look at engineering ethics" . . . 316
"Ground subsides in Houston area" . . . 370

**LOW, DANA E.**
"Finding angle reading errors in long traverses" . . . 738

**LUNA, WILLIAM A.**
"Applied engineering principles reduce costly accidents" . . . 373
Correction by author . . . 464

**LYLE, L. H.**
"Location refined and designs made" (for Atlanta Freeway), R. C. Tate co-author . . . 144

**MACDONALD, J. S.**
"East Delaware Tunnel construction to be completed six months ahead of time" . . . 28

**MAGNEL, GUSTAVE P.**
"Long prestressed steel truss erected for Belgian hangar" . . . 652
"Nine-story prestressed concrete building erected in Germany" . . . 796

**MANN, RALPH H.**
"How would you do it?" . . . 27

**MARDORF, ERWIN C.**
"Mixed in-place piles form jetty to control beach erosion," Norman L. Liver, John C. King, co-authors . . . 156

**MARDULIER, FRANCIS J.**
"Entrained air benefits lightweight aggregate concrete" . . . 24

**MARSHALL, THOMAS A., JR.**
"A concept of unity and a look at the past" . . . 364
"Contributions of EJC on a profession-wide basis" . . . 444

**MARTINSON, E. O.**
"Power cranes and shovels—I. Capital investment and work capacity" . . . 806

**McCOY, L. STEWART**
"Forced to join a union? It can happen to you" . . . 543

**McCROSKY, T. T.**
AICE opposes bidding on price basis . . . 817

**McGREW, EDWARD J., JR.**
"Performance type of building code gives scope for engineering ingenuity" . . . 509

**McWHORTER, B. P.**
"Construction problems are mainly concerned with public relations" (on Atlanta Freeway) . . . 147

**MOYSE, JACK**
Correction for his article "Stirrup spacing in beams rapidly determined" (Oct. '53) . . . 105
"Simplifying compression reinforcing design" . . . 247

**NARROW, LEWIS**
"Barytes aggregate and grout intrusion method used in shield for materials testing reactor" . . . 292

**NARVER, D. LEE**
"Good concrete made with coral and sea water—I. Coral for aggregate . . . 654
"II. Sea water for concrete" . . . 725

**NICHOLSON, H. H.**
"A million and a half high-strength bolts speed up steel erection at AEC Portsmouth plant" . . . 521

**NIXON, JOHN E.**
"Construction methods adapted to local labor on San Marcos Bridge in El Salvador" . . . 584

**OFTELIE, THOMAS C.**
"Jungle no barrier to aerial mappers of Cerro Bolivar" . . . 457

**OKUN, DANIEL A.**
"High type sanitary facilities provided in Venezuelan wilderness," Carl A. Arenander, co-author . . . 220

**ONDRA, OTAKAR**
Discussion on "New deformeter developed for Structural Model Analysis," John P. Cook . . . 817

**PEARCE, HENON**
"Fast precasting schedule for record-size Marine Corps warehouses at Albany, Ga.," John A. Dominy, Charles C. Zollman, co-authors . . . 525

**PEEBLES, W. E.**
"Low-cost pavement stretches the maintenance dollar," W. E. Kennedy, co-author . . . 677

**PENFIELD, WALLACE C.**
Discussion against competitive bidding for engineering services . . . 541

**PERKINS, ERNEST T.**
"Expressway crosses New Haven harbor front on hydraulic fill" . . . 439

**PERRY, THOMAS DOANE**
Discussion on mirror-like globe used as surveying instrument . . . 393

**PETERSON, C. H.**
"Tough terrain conquered by builders of West Virginia Turnpike" . . . 74

**PICKWORTH, JOHN W.**
"Concrete and steel framing combined in wide open bank building" (for Manufacturers Trust Co., New York), Walter H. Weiskopf, co-author . . . 240

**POOR, WILLIAM B.**
"Competition brings economics to the fore in gas pipeline transmission" . . . 720

**POWELL, RALPH W.**
"Resistance to flow in smooth pipes found directly" . . . 738

**PRUGH, BYRON J.**
"Anchorage excavation tests versatility of wellpoints for San Marcos Bridge in El Salvador" . . . 580

**RAU, IRVING B.**
"Curves give efficiencies of friction pile groups" . . . 463

**RIDGE, S. E.**
"Maintenance of high-speed, high-traffic highways a difficult problem" . . . 571

**ROBERTS, W. J.**
"Recording evaporation gage provides year-round record" . . . 678

**ROBERTSON, J. M.**
"More research on aerated flow needed" . . . 805
"Theodolite found useful in hydraulic testing" (at Penn. State Univ.), A. F. Lehman co-author . . . 740

**ROEBLAD, SVEN G.**
"Stirrups spaced by simple methods" . . . 679

**ROOT, CLARK**
"Extension brings Canadian crude oil to East in pipeline 1,770 miles long" . . . 69

**ROWE, R. ROBINSON**
"N. G. Neare's Column" . . . 56, 124, 196, 266, 340, 418, 486, 560, 626, 700, 760, 845

**ROZNOY, L. W.**
"Experimental filters for treating cellulose acetate wastes yield encouraging results" . . . 288

**RYAN, ALFRED J.**
"Prestressing rehabilitates concrete water tank" . . . 446

**SANKS, R. L.**
"Reinforced concrete columns quickly designed by chart" . . . 603

**SARKARIA, GURMUKH**
Discussion of "Preliminary Sections Determined for Concrete Gravity Dams," David D. Congleton . . . 818

**SAWYER, HERBERT A., JR.**
Discussion on error in AASHO bridge specifications . . . 249

**SCHUMANN, GEORGE E.**
"Transmission towers 437 ft high support span of 3,810 ft" . . . 9

**SEVERUD, FRED N.**
"Materials combined to advantage—concrete in compression, steel in tension" (in Raleigh, N. C. Livestock Judging Pavilion) . . . 152

**SHANNON, WILLIAM D.**
"Connell Dam provides water supply for Alaska's first pulp mill," William L. Shannon, co-author . . . 359

**SHANNON, WILLIAM L.**
"Connell Dam provides water supply for Alaska's first pulp mill," William D. Shannon, co-author . . . 359

**SHAW, ROBERT S.**
"Raritan River pollution abatement—obvious problem takes years to solve" . . . 670

**SHERMAN, LE ROY K.**
Honorary Member, dies . . . 179

**SMITH, D. I.**
"Six-million-dollar plant recovers fine coal from Susquehanna River," Paul Levin, co-author . . . 435

**SMYTH, HENRY D.**
"Development of nuclear power for peaceful purposes" . . . 224

**SNETZER, ROBERT E.**
Long-span prestressed-concrete beams used in Army field house" (Germany) . . . 217
Discussion by Mr. Snetzer . . . 393

**SOLLENBERGER, NORMAN J.**
"Cable-truss" design greatly increases stiffness for San Marcos Bridge in El Salvador" . . . 576
Correction by Mr. Sollenberger . . . 682

**SPORN, PHILIP**
"OVEC steam plants furnish 2,200,000 kw for AEC Portsmouth plant," H. A. Kammer, co-author . . . 516
Correction by Mr. Kammer . . . 605

**STEWART, RALPH W.**
Discussion of "Continuity—asset or liability?" Anthony Hoadley . . . 682

**STICKLER, C. W., JR.**
"Chemical sealing stops leakage in tunnels of Pennsylvania Turnpike," A. Allan, Jr., co-author . . . 722

**STURGIS, S. D., JR.**
"Inadequate pre-college training imperils nation's future" . . . 299
"The pipeline carries the punch" . . . 811
"World's third tallest structure erected in Greenland—radio transmission tower at Thule . . . 381

**TAIRA, KANKICHI**
"Tables give area of segment and length of arc" . . . 307

**TATE, R. C.**
"Location refined and designs made" (for Atlanta Freeway), L. H. Lyle, co-author . . . 144

**TAYLOR, CURTIS R.**
"Vertical-curve elevations found by addition" . . . 307

**TEDESKO, ANTON**
"Thin-shell arch selected for Denver Coliseum" . . . 448

**THORNLEY, J. H.**
"Compressed concrete pedestal piles form foundation for Corlears Hook Apartment Project, New York" . . . 783

**TULTS, HAROLD**
Discussion of "Sloping-sill sand screens exclude silt from Egyptian irrigation canals, Serge Leliavsky . . . 391

**VENNARD, JOHN K.**
"Stokes' law confirmed by falling sphere experiment" (Stanford University Laboratory) . . . 234

**VOLKER, A.**
"Dutch close tidal breach at Ouwerkerk," Ira A. Hunt, Jr., co-author . . . 647

**VOLSE, LOUIS AELRED**
Discussion, "American engineers can learn much from the French" . . . 741

**WALLACE, F. A.**
"Continuous beams analyzed by slope increments" . . . 816

**WASHBURN, BRADFORD**
"On-the-spot photographs expedite Mount McKinley survey" . . . 102

**WEISE, C. A.**
"Gulf Coast inlet converted to fresh-water reservoir" . . . 674

**WEISKOPF, WALTER H.**
"Concrete and steel framing combined in wide-open bank building" (for Manufacturers Trust Co., New York), John W. Pickworth, co-author . . . 240

**WENDELL, E. W.**
Discussion on effectiveness of railing used on highway bridges . . . 464

**WILSON, RICHARD H.**
"Cost index developed by California Division of Highways proves its value" . . . 82

**WISELY, W. H.**
To succeed W. N. Carey as ASCE Executive Secretary . . . 748

**WOLFORD, DON S.**
"Sectional properties of corrugated sheets determined by formula" . . . 103

**WRIGLEY, GEORGE, JR.**
"Standard proposed for indicating the precision of construction cost estimates" . . . 150

**YATES, FRANCIS G.**
Discussion of "Forced to join a union? It can happen to you," Stewart L. McCoy 604
Discussion on improving public relations . 173

**YODER, CHARLES W.**
"What about collective bargaining?" . . . 591

**ZOLLMAN, CHARLES C.**
"Fast precasting schedule for record-size Marine Corps warehouses" (at Albany, Ga.), John A. Dominy, Henon Pearce, co-authors . . . 525